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INT CL^6 **G06F, G11B**

(54) Abstract Title
Media data database

(57) A data base of image data is built automatically as data is being transferred within a processing environment. A transfer of image data between a processing environment (101) and a storage medium (102) is detected. A database copy of the detected images is made and related to the particular storage medium. The technique may also be used for other media data such as audio tapes.

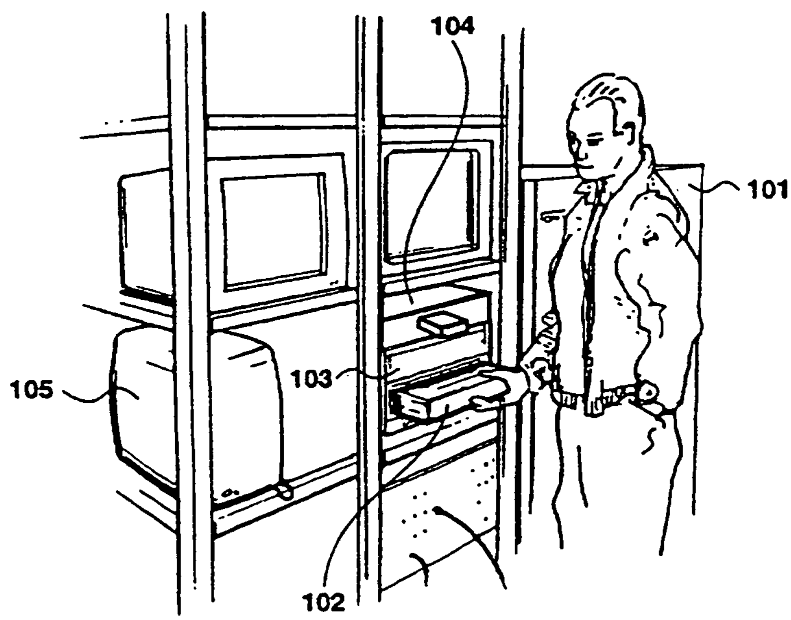

Figure 1

BEST AVAILABLE COPY

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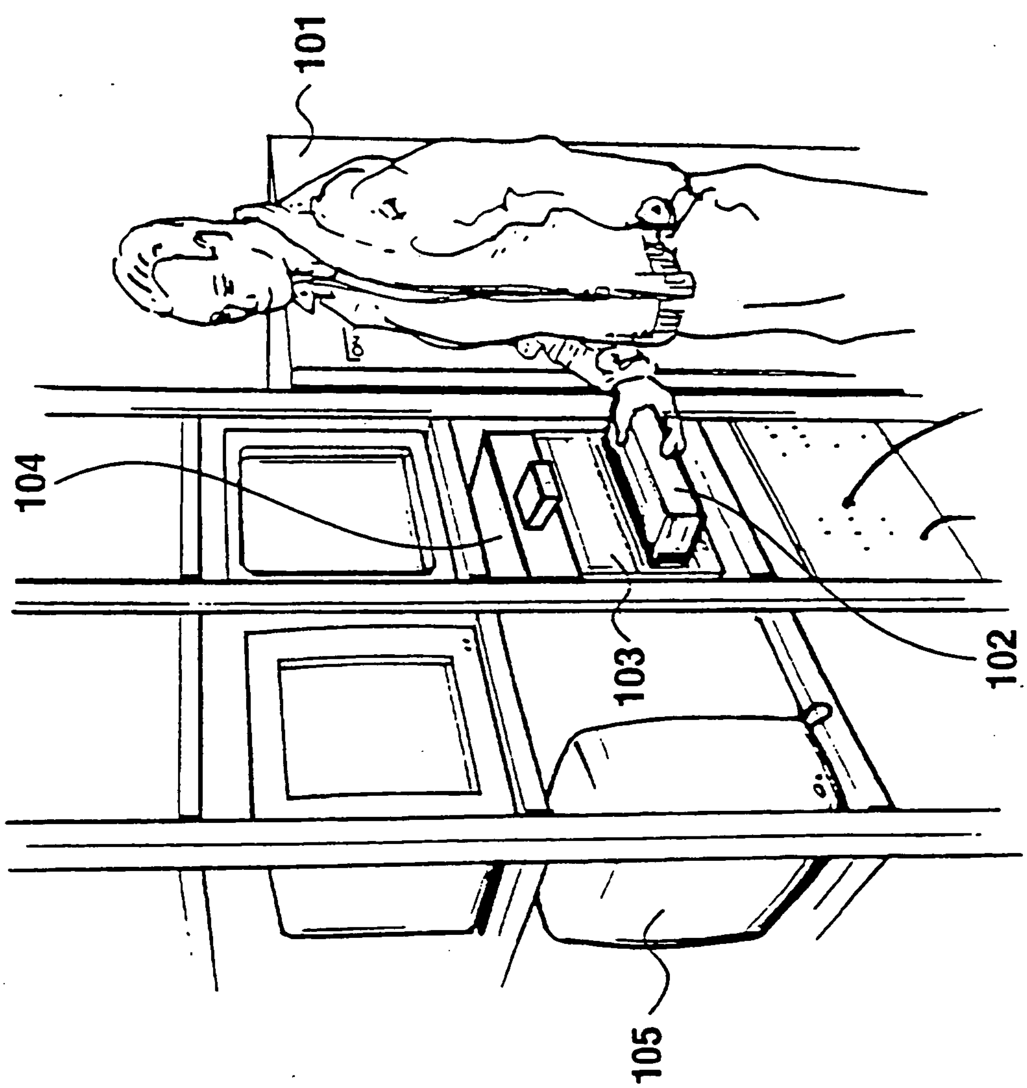

Figure 1

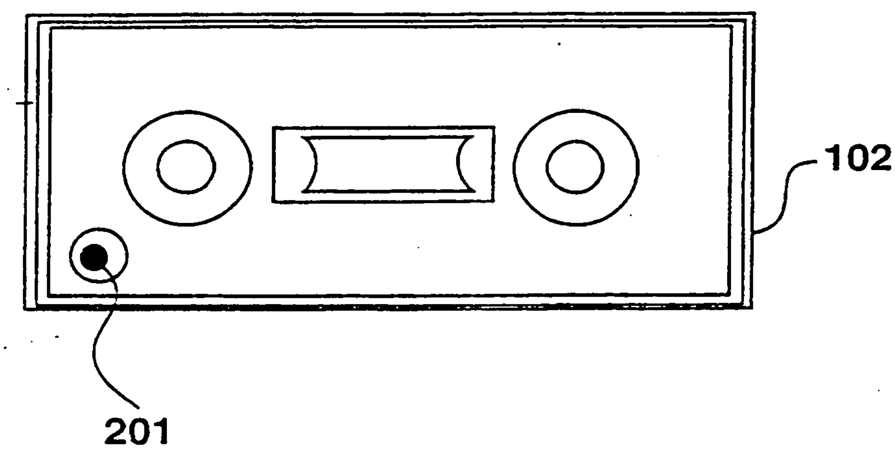

Figure 2A

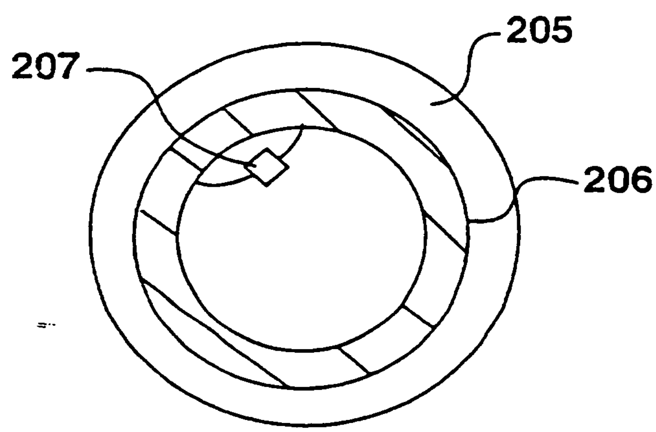

Figure 2B

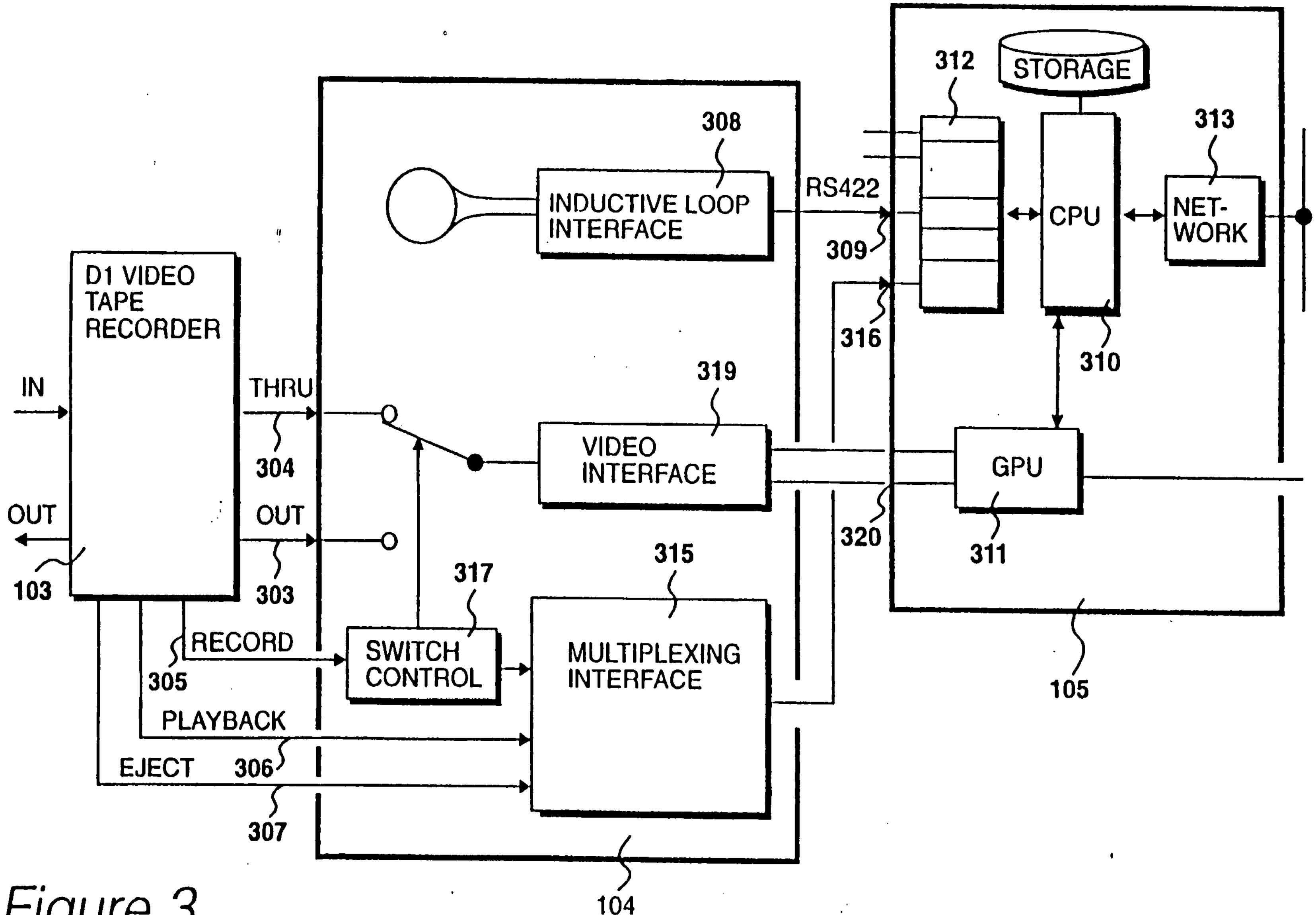
D1 VIDEO TAPE RECORDER
IN
OUT
103
THRU
304
OUT
303
RECORD
305
PLAYBACK
306
EJECT
307
INDUCTIVE LOOP INTERFACE
308
VIDEO INTERFACE
319
SWITCH CONTROL
317
MULTIPLEXING INTERFACE
315
104
RS422
309
316
320
312
STORAGE
CPU
310
NET-WORK
313
GPU
311
105

Figure 3

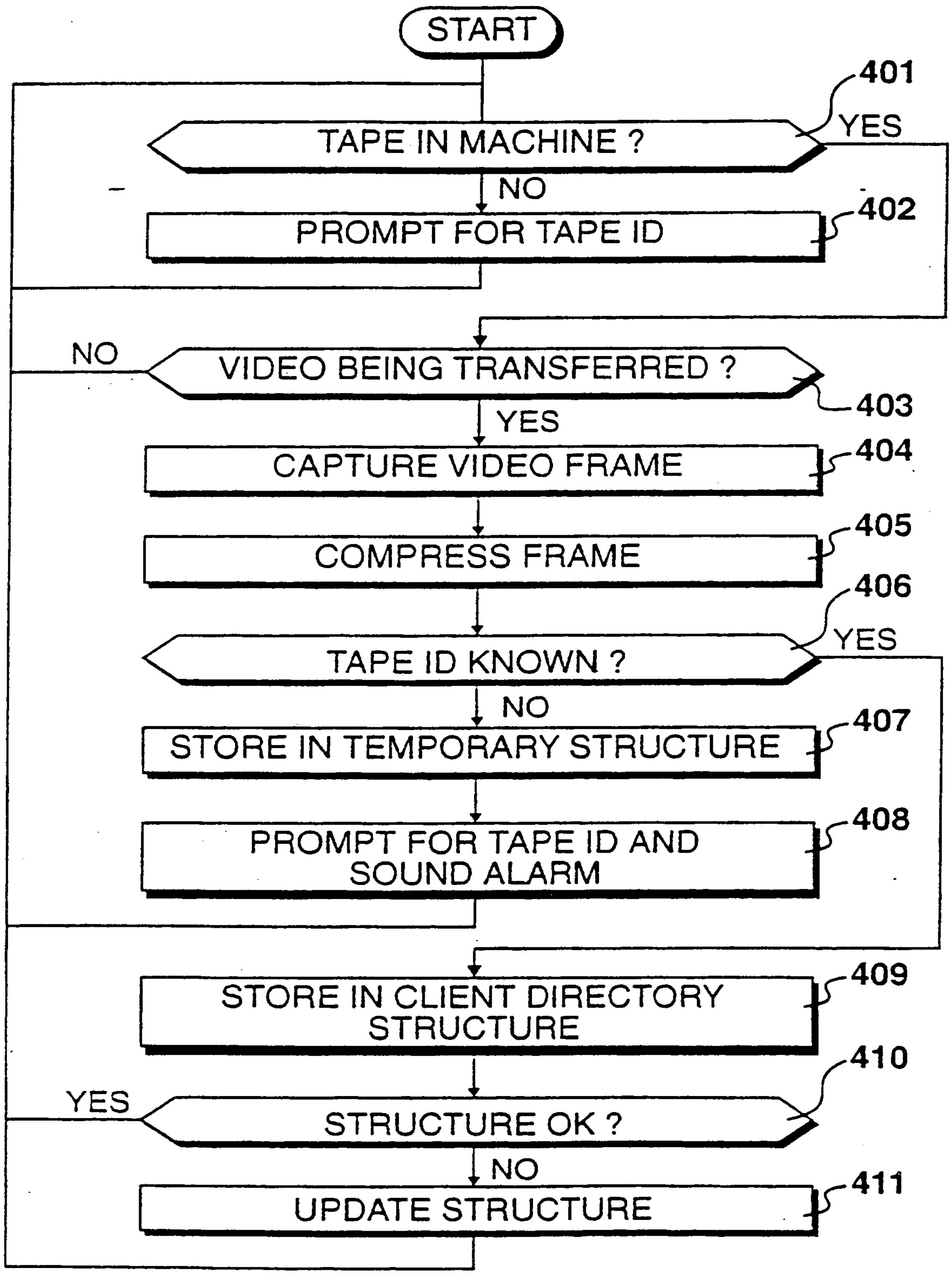
START
TAPE IN MACHINE ?
401
YES
NO
PROMPT FOR TAPE ID
402
NO
VIDEO BEING TRANSFERRED ?
403
YES
CAPTURE VIDEO FRAME
404
COMPRESS FRAME
405
406
YES
TAPE ID KNOWN ?
NO
STORE IN TEMPORARY STRUCTURE
407
PROMPT FOR TAPE ID AND SOUND ALARM
408
STORE IN CLIENT DIRECTORY STRUCTURE
409
410
YES
STRUCTURE OK ?
NO
UPDATE STRUCTURE
411

Figure 4

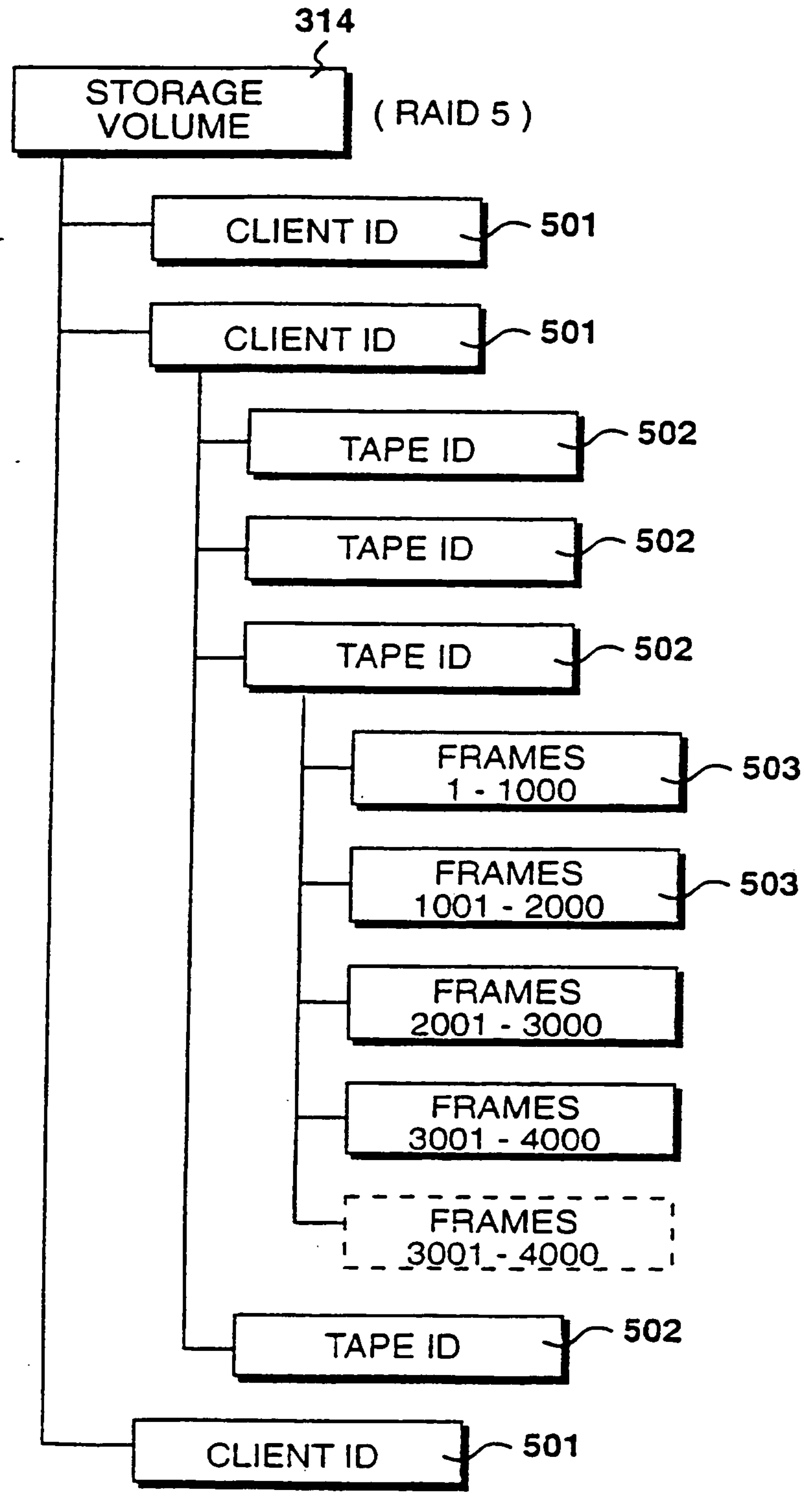
314
STORAGE VOLUME
(RAID 5)
CLIENT ID
501
CLIENT ID
501
TAPE ID
502
TAPE ID
502
TAPE ID
502
FRAMES 1 - 1000
503
FRAMES 1001 - 2000
503
FRAMES 2001 - 3000
FRAMES 3001 - 4000
FRAMES 3001 - 4000
TAPE ID
502
CLIENT ID
501

Figure 5

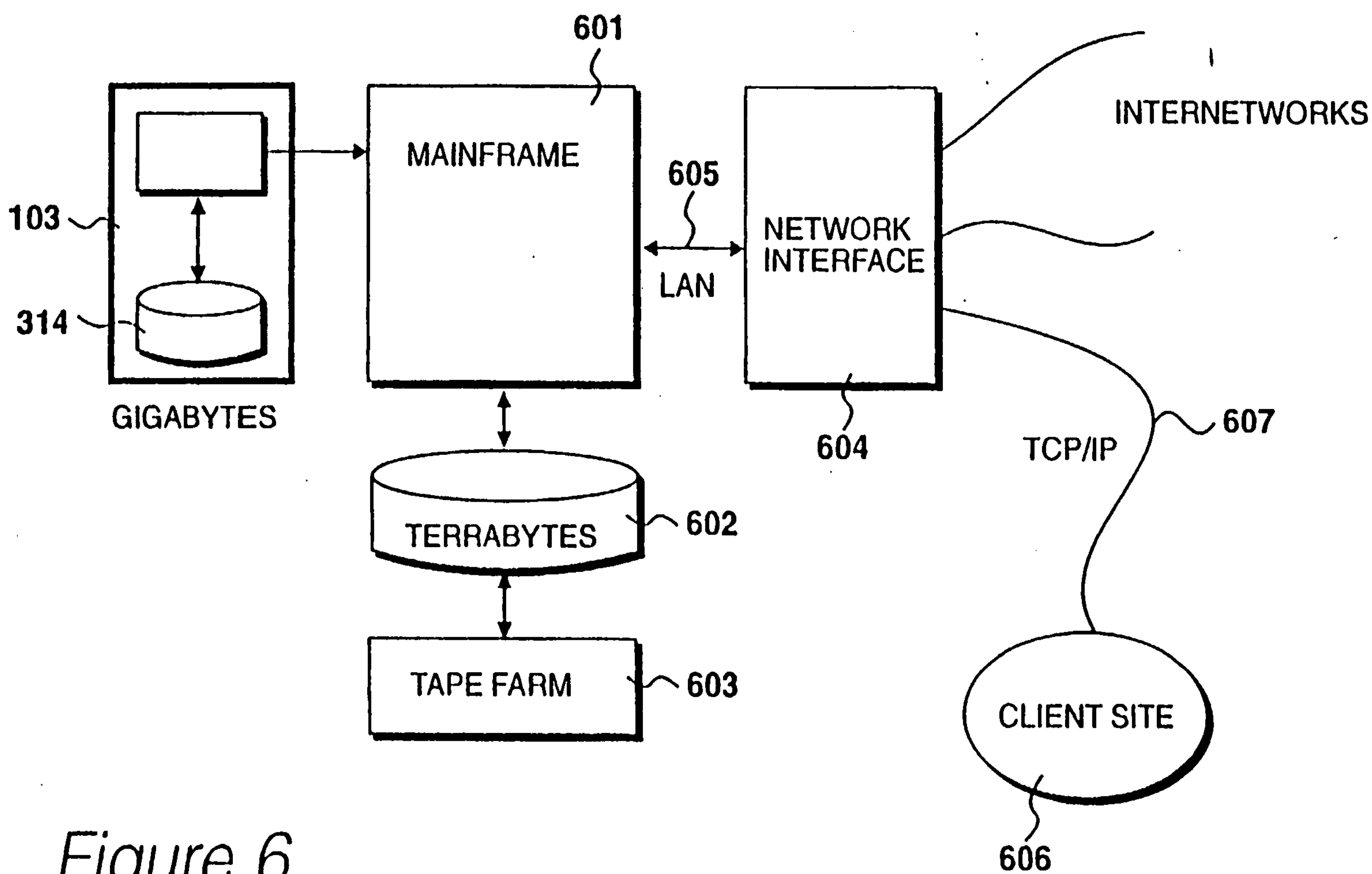
601
MAINFRAME
103
314
GIGABYTES
605
LAN
NETWORK INTERFACE
604
INTERNETWORKS
TCP/IP
607
TERRABYTES
602
TAPE FARM
603
CLIENT SITE
606

Figure 6

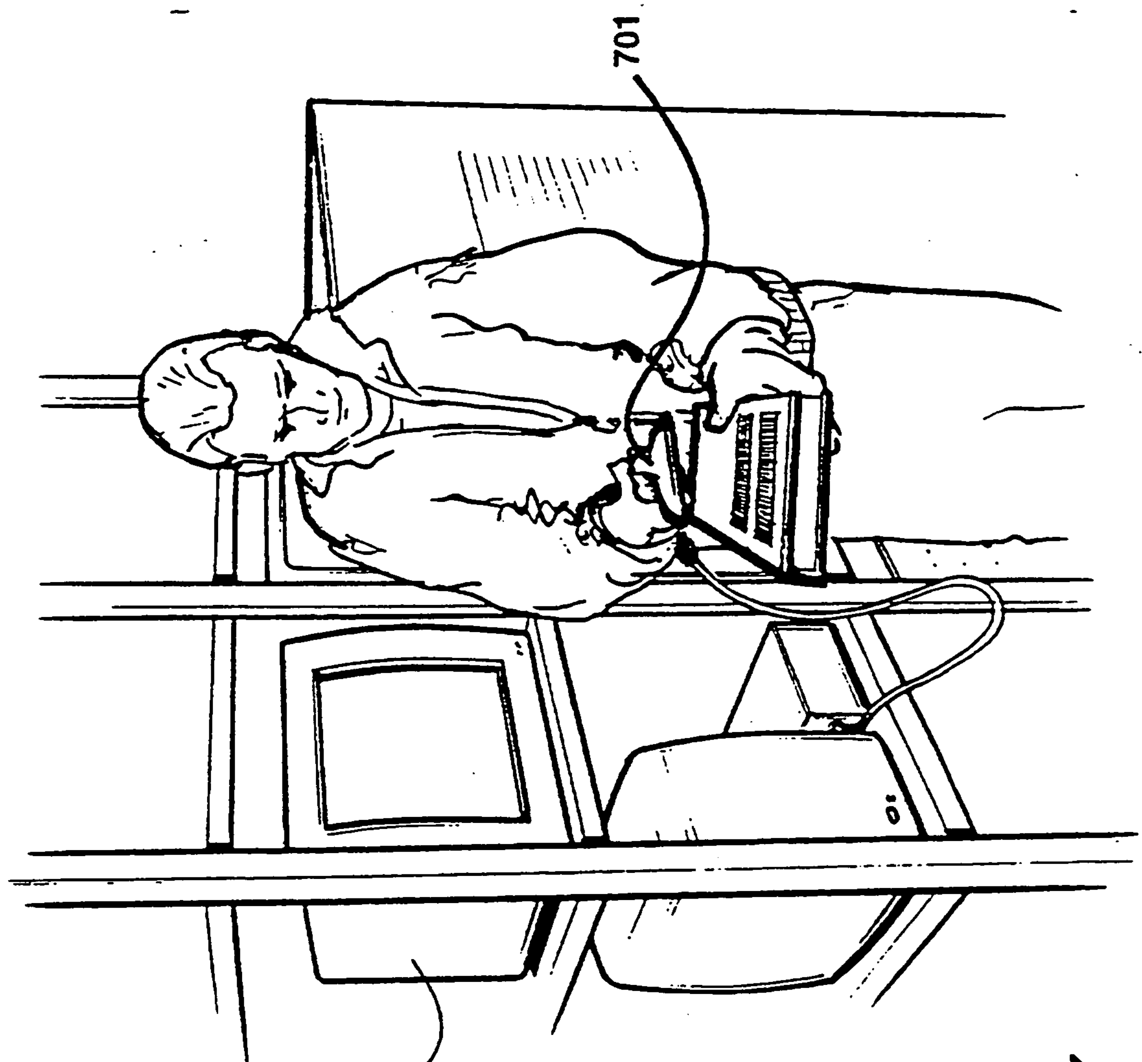

Figure 7

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MEDIA DATA DATABASE

Field of the Invention

The present invention relates to the creating of a database relating to media data.

Introduction to the Invention

Video post production techniques are known in which digital signals representing image frames are manipulated in a process generally referred to as compositing. Video data is stored on magnetic tape such as D1 broadcast quality component tape, transferred into a compositing environment, composited and edited etc, and then recorded back onto digital video tape. As is known in the art, an advantage of transferring data digitally is that many repeated operations may take place or many layers of video may be combined. Ultimately, a final output tape is produced from which broadcastable material may be derived.

In creative environments, such as those encouraged within video facilities houses, modifications to video clips are often required at short notice. Often the amount of time available to complete a compositing job is limited, resulting in a tendency to maintain less than perfect records as to the particular nature of a recording stored on various video tapes within the facility. Furthermore, over a period of time, the number of video tapes available within a facility, or available to a particular video production company, increases significantly therefore it is desirable to maintain a record as to where material resides.

Problems associated with the handling of video tapes in facilities houses also apply to similar procedures for handing audio tapes and, increasingly, audio signals are being processed within a digital processing facility. In the creation of an audio/video work, possibly for broadcast purposes, it is likely that many independent audio sources will be required

and, assuming the source material is supplied to the facilities house by means of an audio tape, the management of these tapes can again place a significant management burden on the facilities operatives.

Within a database, an alpha-numeric indication may be made as to the nature of video material held on particular tapes. However, compositing operations by their very nature often result in many versions being produced from the same or from similar source material. Similarly, several takes may be available of a similar source scene and a reference to particular characters or to particular actions performed may not be sufficient to uniquely identify a particular video clip. As a result, when a producer or video artist requires a particular video clip, it is often necessary to review a number of tapes to identify the clip of interest which, clearly, is a time consuming and expensive process.

In order to facilitate the identification of clips, it is possible to generate copies of these clips at reduced bandwidth such that the reduced bandwidth version may be reviewed in an on-line environment. Thus, substantially smaller image frames, known as "proxies" may be held on a conventional data processing system which, when provided with sufficient data storage capacity, allows video clips to be reviewed in a way that is significantly faster than reviewing the original source tapes. However, such a system in itself requires additional time for the source material to be captured for the purpose of generating proxies. This incurs a cost in that equipment is being used exclusively for this purpose and is thereby not available for creative work, in addition to an operator being required in order to update the database. Furthermore, in addition to storing the proxies, it is also necessary to generate a database record relating particular clips to the location of the original source material, further adding to the burden of the procedure and thereby increasing the likelihood of the procedure not being adopted.

Audio material and visual material, taking the form of still image frames or video clips is collectively referred to herein as "media data". Thus,

media data may take the form of an audio sequence, a collection of still image frames, a single image frame or a video or cinematographic film clip.

Summary of the Invention

According to a first aspect of the present invention, there is provided a method of creating a database relating to audio media, wherein said data is transferred between a storage medium and a processing environment, comprising steps of detecting a transfer of media data between said processing environment and said data storage medium; making a database copy of said detected media data; and relating said database copy of said media data to said storage medium.

Brief Description of the Drawings

Figure 1 shows a video post production facility, in which a digital video tape is being inserted into a tape player;

Figure 2A details the video tape identified in *Figure 1*, having an inductive tag applied thereto;

Figure 2B details the inductive tag illustrated in *Figure 2A*.

Figure 3 shows a schematic representation of equipment for building a database of image data, including a video tape recorder, an interface unit and a processing device;

Figure 4 identifies operations performed by the processing device shown in *Figure 3*, including a step for storing image frames in a directory structure;

Figure 5 details the directory structure identified in *Figure 4*;

Figure 6 illustrates the system for transferring data from the processing device shown in *Figure 3*.

Figure 7 shows an alternative embodiment for identifying video tapes.

Detailed Description of The Preferred Embodiments

The invention will now be described by way of example only with reference to the previously identified drawings. In a video facilities house, post production stations are provided in which a video artist views video clips and initiate manipulations of said clips in response to interface units, such as a stylus and touch tablet. Processing equipment is often held in another room, so that the video artist is insulated from noise generated by the equipment and so that the equipment may be maintained under optimal operating conditions in terms of temperature and humidity etc. This also ensures that sensitive equipment is kept away from the working environment of the artists station.

In most facilities houses, more than one artists station is provided, each communicating with a processor room. In this way, resources within the processor room may be selectively connected to particular stations thereby enhancing the adaptability of the overall facility, particularly given that artists and producers are usually charged on the basis of the actual equipment being used for a particular job.

Part of a post production processing room is illustrated in *Figure 1*. Manipulations performed on digitised video clips or digitised cinematographic film may be processed on a general purpose computing platform such as an Onyx 101 manufactured by Silicon Graphics Inc. The processor may implement instructions such as those licensed under the trade marks FLAME or FIRE by Discreet Logic Inc, performing compositing or editing functions respectively.

In order for compositing or editing operations to be performed in the digital domain, it is necessary for source material to be captured by the Onyx system **101** from source material, possibly in the form of a D1 video tape **102** or in the form of cinematographic film. To initiate a capturing process, a D1 video tape **102** (in this example) is inserted into the video tape recorder **103**, whereafter the tape recorder is placed in a play condition, usually in response

to remote operations made by a video artist. After material has been captured, compositing and editing procedures may be performed, whereafter the new material may be written to a similar tape. Thus tape recorder **108** may record information received from the Onyx system **101** onto an output tape, similar to tape **102**.

In conventional systems, an operator, would be required to mark-up the new tape and ensure that records are maintained identifying the original source material and the newly post produced material. Several copies of the output tape may be made to ensure that back-ups are available but, generally, after the compositing or editing has been done, all of the captured material within the Onyx environment is deleted, given that storage space at full bandwidth definition is a limited resource and will be required for the next job.

The processor room environment shown in *Figure 1* has been modified in accordance with the present invention. Firstly, all tapes used by the present system include machine readable data which uniquely defines that tape. All tapes entering the facility have an inductive tag applied thereto configured to store information representing a unique identifying number. In this way, the identifying number may be associated to a particular customer and to a particular tape belonging to that customer.

The Onyx computer **101** is arranged to store reduced definition proxies of video clips such that said proxies may be related to tape numbers or similar references. In this way, it is possible for the proxies to be reviewed in real time interactively by an operator, thereby allowing an operator to identify particular clips. In this way, several months, say, after a compositing operation has been performed, it would be possible for a producer to review several sets of proxies in order to identify a particular video clip which may again be of interest. In this way, it is not necessary for detailed notes to be made identifying the particular type of material held on each video tape, provided that an appropriate library system is maintained such that

referenced tapes may be quickly identified. Thus, after reviewing proxies, a producer may be able to identify a particular tape held within their library system for use in a new job. Access to the proxy database is also provided over an internet connection such that the database held at the post production facility may be viewed remotely at customer's premises in order to identify particular video tapes which may be stored at said premises. Customers may also be given access to proxies as a job is progressing, such that the work may be reviewed at an interim stage over the internet or an intranet as progress is being made.

The system shown in *Figure 1* substantially enhances the way in which a database of proxies is maintained while significantly reducing the burden placed on operators in order to maintain said database. In particular, it is not necessary for an operator or an artist to replay video material from tape exclusively for proxy generation to be effected. Image data is transferred between a storage medium, such as D1 video tape and a processing environment, such as the Onyx 101 running FLAME. The transfer of image data in this way is automatically detected when the material is being transferred from the D1 machine to the Onyx **101**, a replay operation, or when video material is being transferred from the Onyx to the D1 machine, a record operation. As this transfer occurs, a database copy of the detected image is automatically stored and, once stored, the database copy of the images is related to the respective storage medium. Thus, information is provided or detected identifying the particular video tape concerned, to be replayed or recorded. Whereafter, the particular video information being recorded to, or replayed from, is recorded separately, for the database purposes, and the two information objects are then related in the database so that the proxies may be reviewed in an on-line environment. Thereafter, from the relational table, a unique reference to the video source is immediately given.

The tape recorder **103** provides a signal to the interface unit **104** indicating whether the tape recorder is recording video or replaying video. Video signals generated by the tape recorder **103** during play back are supplied to the Onyx system **101** and, similarly, the tape recorder **103** is used to record video information received from the Onyx system. In addition, this video information, whether in replay mode or in playback mode, is also supplied in parallel to an interface unit **104**, such that said unit **104** receives an indication as to whether tape replay or record is taking place, while also receiving a copy of the video information that is being replayed by the video tape recorder or recorded by the video tape recorder. Thus, whenever video data is transferred between the video tape recorder **103** and another system, such as the Onyx system **101**, a copy of this information is supplied to the interface unit **104**.

The interface unit **104** selects video information from a record port or from a playback port and conveys this to a video in port of a Silicon Graphics 02 system **105**. Furthermore, the interface unit **104** receives time code from the video tape recorder which is conveyed to a serial port of the 02 system **105**. Thus, a video input port of the 02 system **105** receives video data from the video tape recorder **103**. A first serial port of the 02 system receives time code from the tape recorder **103** and a second serial port of the 02 system **105** receives detected information from interface unit **104**.

Video tape **102** is detailed in *Figure 2A*. In this example, the tape is designed for recording digital video signals in accordance with the well known and established D1 format. However, the tape could be used for conveying any media data, such as video data stored in alternative formats at higher definition, lower definition or in compressed form etc; still image frames at high definition for printing purposes or in compressed form such as in accordance with J-PEG compression techniques; or audio data stored in either digital or analogue form. Furthermore, the invention is not exclusively limited to the storage of media on tape and alternative formats may be used,

such as magnetic disks, optical disks, magneto-optical disks in any formats, such as CD's, mini disks, floppy disks or high capacity magnetic disks etc.

Whenever a tape or other storage medium is used in the facilities house, a check is made to ensure that an inductive tag **201** has been applied to the tape **102**. Each inductive tap identifies a unique reference, therefore this unique reference is used whenever a tape is used without fear of reference duplication. Alternatively, if an operator is required to use a tape which does not have a tag in place, a tag will be applied to the tape before the tape is actually inserted within a machine. Alternatively, a facilities house could adopt a policy to the effect that all tapes are checked on entering the facility, with tags being applied thereto in the reception area. Alternatively, suppliers could be instructed to supply tapes with tags already applied and it is possible that, in future, as the system becomes more widely adopted, tags of this type could be applied as part of the manufacturing process.

Inductive tag **201** is detailed in *Figure 2B*. The tags are fabricated on a polyethylene substrate **205** having an inductive coil **206** and an identity chip **207** embedded therein. An adhesive is applied to a surface of the substrate thereby allowing it to be attached easily to a video tape **102**.

When the inductive tag is placed in the vicinity of an interface unit **104**, the tag receives a pulse of electromagnetic energy which in turn results in a voltage being induced within the coil **206**. This voltage is supplied to the identity chip **207** thereby energising said chip. The energising process consists of rectifying and regulating the induced power whereafter a serial stream of electromagnetic pulses are generated for retransmission by the inductive coil **206** in an encoded form, thereby transmitting the unique identifying number contained within the chip. During manufacturing, each chip is programmed with a unique identifying code thereby ensuring that each chip presents a unique digital output when energised by the coil.

A schematic representation of the environment illustrated in *Figure 1* is given in *Figure 3*. Video tape recorder **103**, interface circuit **104** and

processing system **105** are given similar reference numerals. The video tape recorder **103** supplies video data over output port **301** in playback mode and receives video data over input port **302** during record mode. In addition, video signals supplied to output port **301** are also supplied to a second output port **303**, which communicates with the interface unit **104**. Similarly, signals received on input port **302** are also passed through the tape recorder **103** to a through output **304** which is also received by the interface unit **104**.

The video tape recorder **103** generates status signals, in which a TTL logic level 1 is placed on line **305** when the machine is recording, a similar level is placed on line **306** when machine **201** is playing a tape back and a similar TTL logic level is placed on line **307** when a tape is being ejected. All three of these lines **305** to **307** are supplied to the interface unit **104**. Unit **104** also receives output signals from an inductive detector which are in turn supplied to a inductive loop interface circuit **308**, arranged to convey serial information over an RS422 connection to a first serial interface **309** of the processing device **103**.

Processing device **105** is a conventional 02 system produced by Silicon Graphics Inc which, for the purposes of this disclosure, may be considered to comprise a central processing unit **310**, a specialised graphics processing unit **311**, interface cards **312**, a network card **313** and a local storage device **314**. The output from the inductive loop interface **308** is supplied to one of the serial interface cards **312**, whereafter said information may be processed by the central processing unit **310**. The central processing unit **310** also has read only memory for temporarily storing data and instruction programs.

Within the interface unit **104**, the control lines **305**, **306** and **307** are received by a multiplexing interface **315**, arranged to multiplex the incoming signals and to transmit the data over a serial RS422 connection to a second serial input port **316** of the processing device **103**. The record control signal on line 305 is supplied to the multiplexing interface **315** via a switch control

circuit **317**. A switch **318** selectively supplies the output video signal from line **303** or the output video signal from line **304** to a video interface **319**. The video interface **319** performs serial to parallel conversion, whereafter the parallel signal, in an accepted format, is supplied to a video input **320** of the processing device **103**, which in turn conveys the video information to the graphics processor **311**.

When the signal on control line **305** is high, switch control **307** is activated and switch **318** is forced into its upper position as illustrated in *Figure 3*, such that the incoming video information on line **302**, the information being recorded by the video tape recorder **201**, is passed over "through" line **304** to the video interface **319**. If the video tape recorder is not recording video information, the output on control line **305** is low and no output is generated by switch control **307**. Switch **318** is mechanically biased and under these conditions will switch to its alternative location (the alternative to that shown in *Figure 3*), resulting in output line **303** being connected to the video interface **319**. Thus, if the video tape recorder is not recording video information, it is possible for any playback to be relayed to the video interface **319** and subsequently onto the processing device **103**.

When the tape recorder **201** is recording video data or when the tape recorder **201** is replaying video data, this video data is relayed to the graphics processing unit **311** via the video interface **319**. Within the graphics processing unit **311** relatively low bandwidth proxies are generated in response to the received full bandwidth video data. Many bandwidth production processes of this type, sometimes referred to as "decimation" are known and for a particular implementation, trade offs may be made in terms of the quality of the proxies against the processing capabilities available within the system. Thus, in the simplest implementation, certain lines may be rejected and of the remaining lines certain pixels within said lines may be rejected. However, the graphics processing unit **311** within the 02 machine is capable of performing more sophisticated filtering operations so as to

generate a proxy which retains a greater portion of the original information.

In alternative systems, particularly where the degree of storage must be minimised, more sophisticated compression techniques may be employed, such as those defined in accordance with J-PEG or M-PEG recommendations. The compressed video proxies are supplied to the central processing unit **310** which is then responsible for writing these proxies to the local storage device **314**. The CPU **310** should have received bar code information identifying the particular tape being recorded or replayed and in response to this information the compressed data is appropriately stored within the storage device **314**. It is appreciated that eventually the storage device **314** will become full therefore provision is made for the data to be transferred to a larger environment via network card **313**.

Procedures performed by the processing device **313** are illustrated in *Figure 4*. After a tape has been removed from the video tape recorder **201**, a signal will have been generated on control line **307** which will have been relayed to processing system **105** via the multiplexing interface **315** and serial port **316**. After receiving such a signal, the processing system **313** enters a state representing a condition to the effect that no tape is in the machine. At step **401** a question is asked as to whether a tape is present in the machine and when answered in the negative, a prompt is issued to monitor **105** requesting tape identity information.

As tape **102** is being inserted into the tape recorder **103**, the interface unit **104** energises inductive tag **202**, resulting in identity information being returned back to interface unit **104**. A signal received on control line **305** (record) or a control signal on line **306** (playback) indicates that a tape had been inserted in the machine, resulting in the question asked at step **401** being answered in the affirmative. Given the nature of tape recorders and their necessity to stabilise before video transfer takes place, a delay is incurred between instructions being issued to the machine and the machine being in a state where stable video may actually be transferred. Thus, after

detecting a record or playback condition, a question is asked at step **403** as to whether video is being transferred. If this question is answered in the negative, control is returned to step **401**, resulting in the processing system entering a loop until video is detected.

On detecting the transfer of video, effectively the reception of a video signal via the graphical processing unit **311**, the question asked at step 403 is answered in the affirmative and the video frame is captured by the graphical processing unit **311** at step **404**. Processing unit **311** is then configured to compress the frame at step **405** and to make the compressed video data available to the central processing unit **310**.

At step **406** a question is asked as to whether the tape identification data is known. This data should be known because the tag **201** should have been energised when the tape was placed in the recorder. However, if the question asked at step **406** will be answered in the negative, resulting in the captured and compressed video being stored in a temporary structure at step **407**. Thereafter, at step **408** a prompt is made for the tape identification to be supplied, possibly with the addition of an audible alarm sounding. Thereafter, control is returned to step **401**, awaiting the reception of the next video frame.

Under normal operating conditions the tape identification data will be known to the system, resulting in the question asked at step **406** being answered in the affirmative. Under these conditions, control is directed to step **409**, resulting in the captured and compressed video data being stored in a client directory structure at step **409**. This structure may require housekeeping operations to be performed, particularly as directories become large, therefore a question is asked at step **410** as to whether the client structure is satisfactory. If this question is answered in the negative, the structure is updated at step **411**, whereafter control is returned to **401**. If no updating of the structure is required, the question asked at step **410** is answered in the affirmative and again control is returned to step **401**.

The storage structure for compressed video frames is illustrated in *Figure 5*. Each individual frame is stored as a data file within a conventional Unix file structure. The storage volume **314** may incorporate redundant data so as to protect said data, possibly in accordance with RAID 5 recommendations. Thus, the storage volume **314** may be considered as the root directory for the purposes of the file structure.

The root directory is divided into client directories **501**, each having its own unique client identification number. Within the client directories, specific tape directories **502** are created for each unique tape. The tapes are pre-formatted with time code and as such each tape will comprise several thousand frames. The frame number, specified by its time code, is used as the file name which exists within frame directories **503**, each containing a maximum of 1000 frames. Thus, when 1000 frames have been written to a frame directory **503**, the question asked at step **410** will be answered in the negative and at step **411** a new frame directory is created for the subsequent 1000 frames.

A particular attraction of the structure shown in *Figure 5* is that video data associated with each video tape may be captured in any sequence. As a frame is captured its unique time code is identified, resulting in that frame being written to the appropriate directory. Thus, if frames within the region 1 to 1000 are captured, subsequently followed by frames in the range 3000 to 4000, the new frames will be written to the appropriate frame sub-directory such that, over time, as more of the tape is played, more of its complete contents will be captured and stored within the structure as proxies.

It is appreciated that the volume of data transferred between video tape recorders and processing environments within a facilities house is extremely large therefore storage volume **314** would soon become full. Volume **314** and its associated processor **103** are illustrated in *Figure 6*. System **103** is connected to a mainframe computer **601** via its network card **313**. At regular intervals, preferable during periods when the equipment is not

being used, the mainframe computer **601** interrogates storage device **314** so as to effect a transfer of its data thereby clearing storage device **314** for new jobs. The data retrieved by mainframe computer **601** is supplied to a large terabyte store **602**, while maintaining a data structure, on a larger scale, substantially similar to that shown in *Figure 5*.

It is appreciated that even the terabyte store **602** may itself become full after a period of time, so that procedures are put in place for archiving the material to a tape farm or similar system **603**.

Mainframe computer **601** is itself connected to a network interface **604** via a local area network **605**. The network interface **604** provides connections to internetworks so that clients, such as a client at client site **606**, may interrogate data stored on storage device **602** via a TCP/IP link **607**.

An alternative embodiment is shown in *Figure 7*, in which inductive tags have been replaced by bar codes.

In order to locate a unique reference for each customer, it has been suggested that the tapes are labelled with customers internet addresses, given that each customer will automatically be given a unique internet address. This is represented by the first bar code applied to the tape with a second bar code uniquely identifying the tape itself. Thus, in combination, these two bar codes identify the tape uniquely against all other existing tapes. Furthermore, the bar codes may be applied, in the form of sticky backed paper, to both the D1 tape itself and to the case carrying the D1 tape. A similar approach may be adopted with other video tape, such as EXABYTE tapes for high definition work and Betacam tapes for low definition work. Furthermore, machine room operators would be instructed only to use tapes which have bar codes applied thereto and to ensure that these bar codes are scanned as tapes are entered into the tape recorders. Prior to inserting a video tape into a video tape recorder, an operator is invited to scan the bar codes. The bar codes are scanned by a bar code scanner **701** and as a bar code is scanned, information derived from the bar code is displayed on a

monitor **702**, such that an operator has a visual indication to confirm that both of the bar codes have been read correctly. Bar code reading procedures executed by system **103** may allow the two bar codes to be read in any order and may prompt the user to read both of the bar codes twice to ensure that a correct capturing has been effected.

Claims

1. A method of creating a database relating to media data, wherein said data is transferred between a storage medium and a processing environment, comprising steps of

detecting a transfer of media data between said processing environment and a data storage medium;

making a database copy of said detected media data; and

relating said database copy of said media data to said storage medium.

2. A method according to claim 1, wherein said media data is image data in the form of a plurality of image frames.

3. A method according to claim 1, wherein said image data is derived from broadcast quality video signals or digitised cinematographic film.

4. A method according to claim 1, wherein said processing environment performs editing or compositing.

5. A method according to claim 1, wherein said transfer is detected by detecting operating conditions of a recording apparatus.

6. A method according to claim 1, wherein said database copy is recorded at reduced definition.

7. A method according to claim 1, wherein said database copy is made available over a local area network, a wide area network or an internetwork.

8. A method according to claim 7, wherein said internetwork operates in accordance with TCP/IP recommendations.

9. A method according to claim 1, wherein said database copy is stored on magnetic disks.

10. A method according to claim 9, wherein said database copy is captured by a capturing processor having local disk storage, whereafter said data is transferred to a database system.

11. Database apparatus configured to relate a database copy of media data to storage medium storing said media data, comprising

means for detecting a transfer of media data between a processing environment and a data storage medium;

copying means configured to make a database copy of said detected media data; and

means for relating said database copy of said media data to said storage medium.

12. Apparatus according to claim 11, wherein said means for detecting operation of said first recording device includes means for interrogating status lines of said recording device.

13. Apparatus according to claim 11, wherein said means for transferring detected image data includes a switch for selecting data transfers to said first recording device or from said first recording device.

14. Apparatus according to claim 11, wherein said second storage device includes means for compressing detected image data and storing said

compressed image data.

15. Apparatus according to claim 11, wherein said first recording device records video data to magnetic tape and/or replays video data from magnetic tape.

16. Apparatus according to claim 15, wherein said first storage device is arranged to store film resolution images, D1 broadcast video or low bandwidth video data.

17. A method of creating a database relating to media data, substantially as herein described with reference to the accompanying drawings.

18. Database apparatus configured to relate a database copy of media data to a storage medium, substantially as herein described with reference to the accompanying drawings.

Amendments to the claims have been filed as follows

1. A method of creating a database relating to media data, wherein said data is transferred between a storage medium and a processing environment, comprising the steps of

detecting a transfer of media data between said processing environment and a data storage medium;

making a database copy of said detected media data; and

relating said database copy of said media data to said storage medium.

2. A method according to claim 1, wherein said media data is image data in the form of a plurality of image frames.

3. A method according to claim 2, wherein said image data is derived from broadcast quality video signals or digitised cinematographic film.

4. A method according to claim 1, wherein said processing environment performs editing or compositing.

5. A method according to claim 1, wherein said transfer is detected by detecting operating conditions of a recording apparatus.

6. A method according to claim 1, wherein said database copy is recorded at reduced definition.

7. A method according to claim 1, wherein said database copy is made available over a local area network, a wide area network or an internetwork.

8. A method according to claim 7, wherein said internetwork operates in accordance with TCP/IP recommendations.

9. A method according to claim 1, wherein said database copy is stored on magnetic disks.

10. A method according to claim 9, wherein said database copy is captured by a capturing processor having local disk storage, whereafter said data is transferred to a database system.

11. Database apparatus configured to relate a database copy of media data to storage medium for storing said media data, comprising

means for detecting a transfer of media data between a processing environment and a data storage medium;

copying means configured to make a database copy of said detected media data; and

means for relating said database copy of said media data to said storage medium.

12. Apparatus according to claim 11, wherein said means for detecting a transfer of media data includes means for interrogating status lines of said recording device.

13. Apparatus according to claim 11, wherein said means for copying detected image data includes a switch for selecting data transfers to said first recording device or from said first recording device.

14. Apparatus according to claim 11, wherein said copying means includes means for compressing detected image data and storing said

compressed image data.

15. Apparatus according to claim **11**, wherein said data storage medium records video data to magnetic tape and/or replays video data from magnetic tape.

16. Apparatus according to claim **15**, wherein said data storage medium is arranged to store film resolution images, D1 broadcast video or low bandwidth video data.

17. A method of creating a database relating to media data, substantially as herein described with reference to the accompanying drawings.

18. Database apparatus configured to relate a database copy of media data to a storage medium, substantially as herein described with reference to the accompanying drawings.

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Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.P): G4A (AUDB), G5R (RGB, RHE, RB81, RAC)

Int Cl (Ed.6): G06F, G11B

Other:

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
	None	

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